FIPS Publication 200

Minimum Security Requirements for Federal Information and Information Systems

Computer Security Division
Information Technology Laboratory

Legislative and Policy Drivers

- Public Law 107-347 (Title III)
  Federal Information Security Management Act of 2002
- Homeland Security Presidential Directive #7
  Critical Infrastructure Identification, Prioritization, and Protection
- OMB Circular A-130 (Appendix III)
  Security of Federal Automated Information Resources

FISMA Legislation

"Each federal agency shall develop, document, and implement an agency-wide information security program to provide information security for the information and information systems that support the operations and assets of the agency, including those provided or managed by another agency, contractor, or other source…"

-- Federal Information Security Management Act of 2002

FISMA Requirements

- Standards for categorizing information and information systems…based on the objectives of providing appropriate levels of information security according to a range of risk levels
- Guidelines recommending the types of information and information systems to be included in each category
- Minimum information security requirements for information and information systems in each such category

Minimum Security Requirements

FISMA Requirement

- Develop minimum information security requirements for information and information systems in each security category defined in FIPS 199
- Resulting publications:
  - ✓ Federal Information Processing Standards (FIPS) Publication 200, “Minimum Security Requirements for Federal Information and Information Systems”
  - ✓ NIST Special Publication 800-53, “Recommended Security Controls for Federal Information Systems

Applicability

- All information within the federal government other than that information that has been determined pursuant to Executive Order 12958, as amended by Executive Order 13292, or any predecessor order, or by the Atomic Energy Act of 1954, as amended, to require protection against unauthorized disclosure and is marked to indicate its ***classified status***
- All federal information systems other than those information systems designated as ***national security systems*** as defined in 44 United States Code Section 3542(b)(2).

Purpose

- Specifies minimum security requirements for federal information and information systems based upon FIPS 199 security categorizations
- Provides linkage to NIST Special Publication 800-53 for minimum (baseline) security controls necessary for compliance to the standard

Minimum Security Requirements

Key Coverage Areas

- Access Control
- Awareness and Training
- Audit and Accountability
- Certification, Accreditation, and Security Assessments
- Configuration Management
- Contingency Planning

Minimum Security Requirements

Key Coverage Areas

- Identification and Authentication
- Incident Response
- Maintenance
- Media Protection
- Physical and Environmental Protection
- Planning
- Personnel Security

Minimum Security Requirements

Key Coverage Areas

- Risk Assessment
- System and Services Acquisition
- System and Communications Protection
- System and Information Integrity

* **Note: Coverage areas correspond to the families of security controls in NIST Special Publication 800-53**

Example Requirements

- Access Control
  - Organizations must limit information system access to authorized users, processes acting on behalf of authorized users, or devices (including other information systems) and to the types of transactions and functions that authorized users are permitted to exercise.
- Contingency Planning
  - Organizations must establish, maintain, and effectively implement plans for emergency response, backup operations, and post-disaster recovery for organizational information systems to ensure the availability of critical information resources and continuity of operations in emergency situations.

Demonstrating Compliance

- **Categorize** information and information system in accordance with FIPS 199
- **Select** appropriate set of minimum security controls (baseline) from NIST Special Publication 800-53
- **Tailor** the security controls in the baseline using risk assessment, scoping guidance, organization-defined parameters, and compensating controls

Security Categorization

Example: An Enterprise Information System

FIPS Publication 199	Low	Moderate	High
Confidentiality	The loss of confidentiality could be expected to have a **limited** adverse effect on organizational operations, organizational assets, or individuals.	The loss of confidentiality could be expected to have a **serious** adverse effect on organizational operations, organizational assets, or individuals.	The loss of confidentiality could be expected to have a **severe or catastrophic** adverse effect on organizational operations, organizational assets, or individuals.
Integrity	The loss of integrity could be expected to have a **limited** adverse effect on organizational operations, organizational assets, or individuals.	The loss of integrity could be expected to have a **serious** adverse effect on organizational operations, organizational assets, or individuals.	The loss of integrity could be expected to have a **severe or catastrophic** adverse effect on organizational operations, organizational assets, or individuals.
Availability	The loss of availability could be expected to have a **limited** adverse effect on organizational operations, organizational assets, or individuals.	The loss of availability could be expected to have a **serious** adverse effect on organizational operations, organizational assets, or individuals.	The loss of availability could be expected to have a **severe or catastrophic** adverse effect on organizational operations, organizational assets, or individuals.

Guidance for Mapping Types of Information and Information Systems to FIPS Publication 199 Security Categories

SP 800-60

Security Categorization

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Availability	The loss of availability could be expected to have a **limited** adverse effect on organizational operations, organizational assets, or individuals.	The loss of availability could be expected to have a **serious** adverse effect on organizational operations, organizational assets, or individuals.	The loss of availability could be expected to have a **severe or catastrophic** adverse effect on organizational operations, organizational assets, or individuals.

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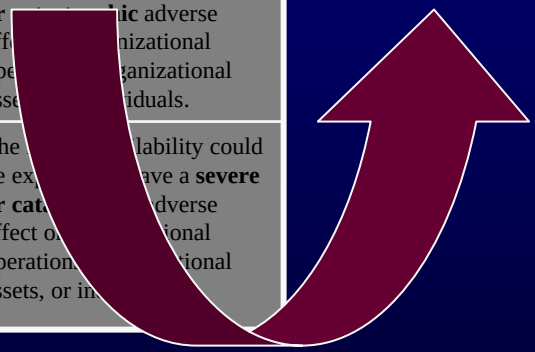
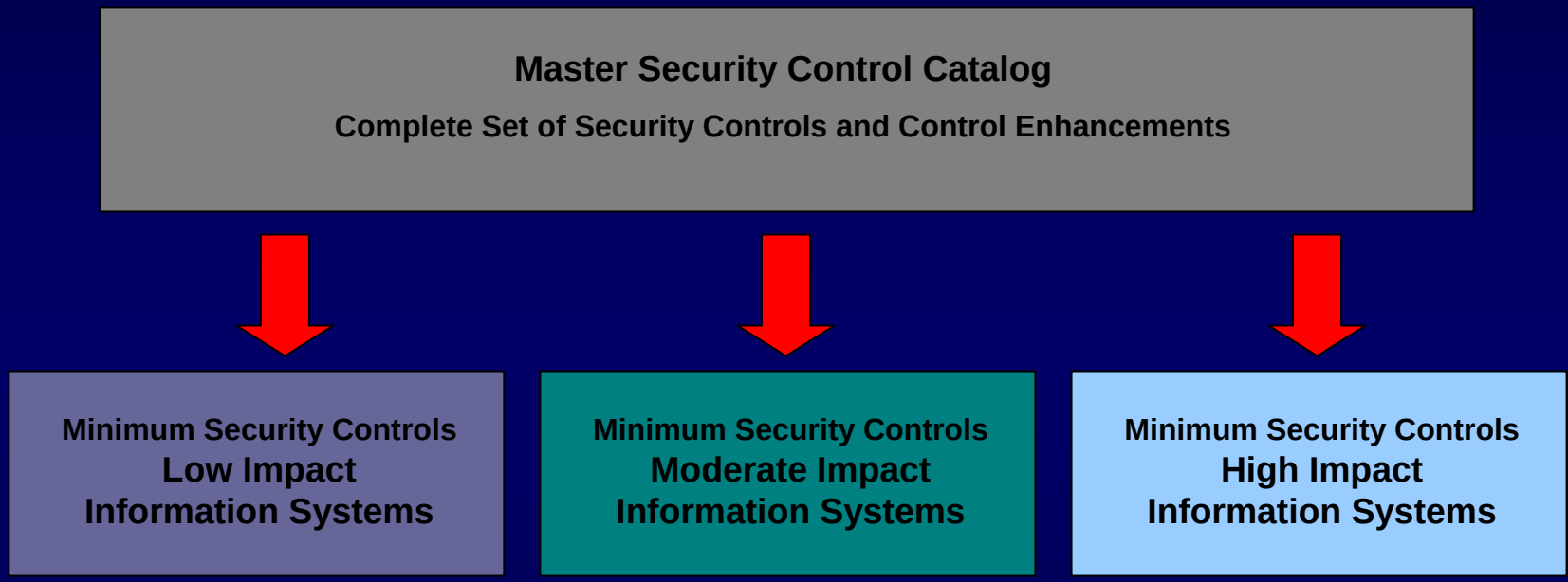
SP 800-60

Minimum Security Controls for High Impact Systems



Security Control Baselines



Baseline #1

Selection of a subset of security controls from the master catalog—consisting of ***basic*** level controls

Baseline #2

Builds on low baseline. Selection of a subset of controls from the master catalog—***basic*** level controls, additional controls, and control ***enhancements***

Baseline #3

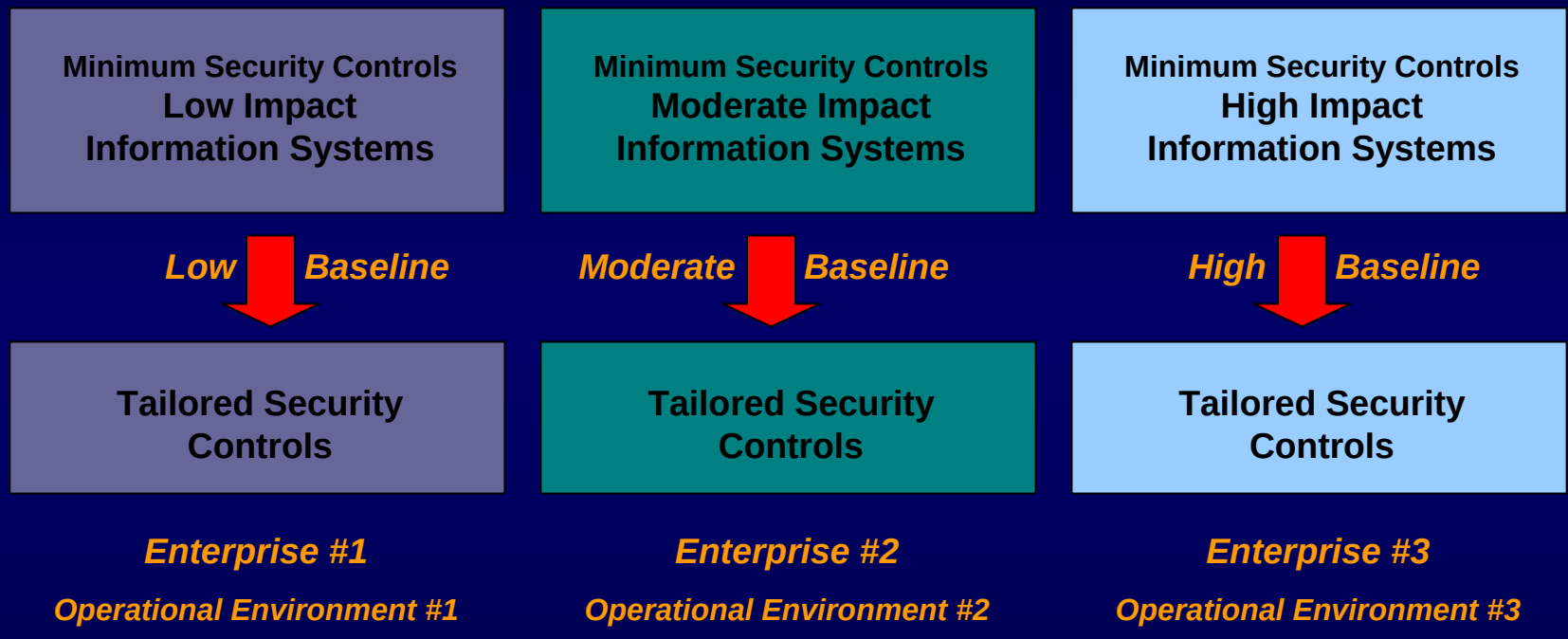
Builds on moderate baseline. Selection of a subset of controls from the master catalog—***basic*** level controls, additional controls, and control ***enhancements***

Minimum Security Controls

- Minimum security controls, or baseline controls, defined for low-impact, moderate-impact, and high-impact information systems—
  - Provide a ***starting point*** for organizations in their security control selection process
  - Are used in conjunction with ***tailoring guidance*** that allows the baseline controls to be adjusted for specific operational environments
  - Support the organization's ***risk management process***

Tailoring Security Controls

Scoping Guidance, Parameterization, Compensating Controls



Cost effective, risk-based approach to achieving adequate information security…

Putting It All Together

Question

How does FIPS Publication 200 fit into an organization's information security program?

An Integrated Approach

Answer

FIPS 200 supports an enterprise-wide risk management process and establishes a foundation for security due diligence.

Managing Enterprise Risk

- Key activities in managing enterprise-level risk—risk resulting from the operation of an information system:
  - ✓ **Categorize** the information system
  - ✓ **Select** set of minimum (baseline) security controls
  - ✓ **Refine** the security control set based on risk assessment
  - ✓ **Document** security controls in system security plan
  - ✓ **Implement** the security controls in the information system
  - ✓ **Assess** the security controls
  - ✓ **Determine** agency-level risk and risk acceptability
  - ✓ **Authorize** information system operation
  - ✓ **Monitor** security controls on a continuous basis

Managing Enterprise Risk

The Framework

Starting Point

FIPS 199 / SP 800-60

Security Categorization

Defines category of information system according to potential impact of loss

FIPS 200 / SP 800-53

Security Control Selection

Selects minimum security controls (i.e., safeguards and countermeasures) planned or in place to protect the information system

SP 800-37

Security Control Monitoring

Continuously tracks changes to the information system that may affect security controls and assesses control effectiveness

SP 800-53 / FIPS 200 / SP 800-30

Security Control Refinement

Uses risk assessment to adjust minimum control set based on local conditions, required threat coverage, and specific agency requirements

SP 800-37

System Authorization

Determines risk to agency operations, agency assets, or individuals and, if acceptable, authorizes information system processing

SP 800-18

Security Control Documentation

In system security plan, provides a an overview of the security requirements for the information system and documents the security controls planned or in place

SP 800-70

Security Control Implementation

Implements security controls in new or legacy information systems; implements security configuration checklists

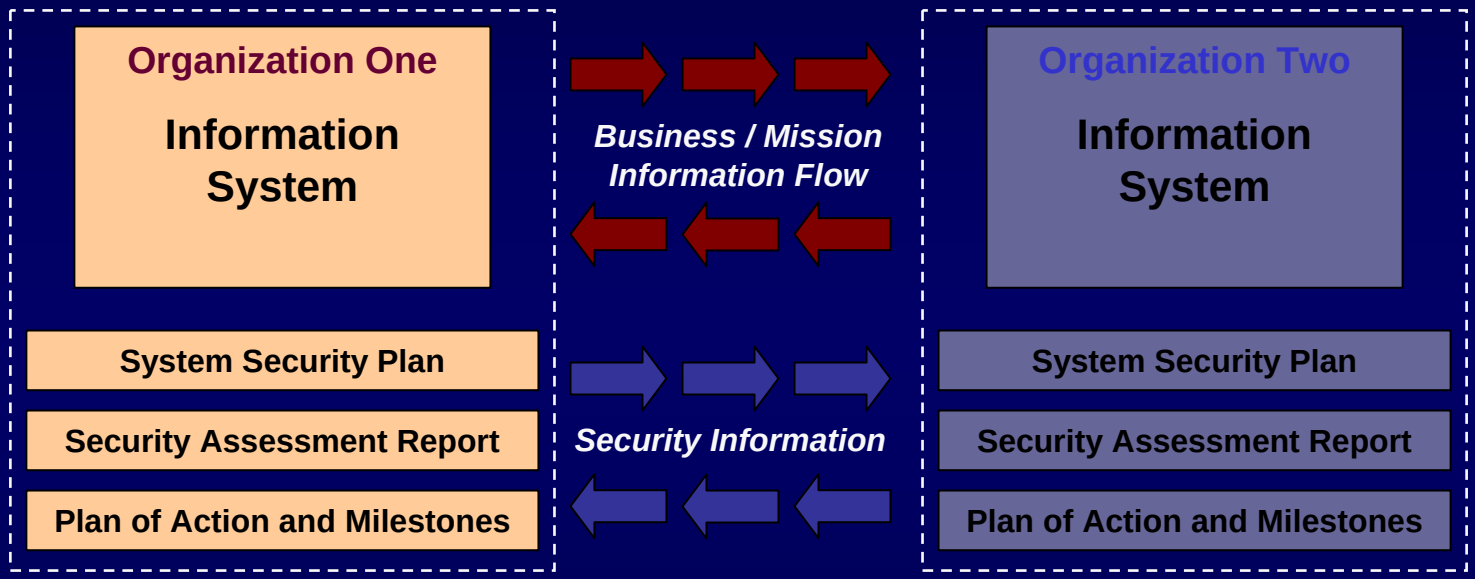
SP 800-53A / SP 800-26 / SP 800-37

Security Control Assessment

Determines extent to which the security controls are implemented correctly, operating as intended, and producing desired outcome with respect to meeting security requirements

The Desired End State

Security Visibility Among Business/Mission Partners



Determining the risk to the first organization's operations and assets and the acceptability of such risk

Determining the risk to the second organization's operations and assets and the acceptability of such risk

The objective is to achieve *visibility* into prospective business/mission partners information security programs BEFORE critical/sensitive communications begin…establishing levels of security due diligence.

Current Status

- Complete initial public draft: **July 2005**
- Public comment period closes: **September 2005**
- Process public comments: **October 2005**
- Prepare final draft: **November 2005**
- Submit to Secretary of Commerce for final approval: **December 2005**
- Final publication: **February 2006**

Compliance Dates

- For legacy information systems

  One year from FIPS 200 final publication date
- For new/developmental information systems

  Immediately when system becomes operational
- No waivers allowed for FIPS in accordance with FISMA legislation

Security Control Updates

- NIST Special Publication 800-53, Revision 1 to be released in conjunction with the approval and publication of FIPS 200
- Minor changes to:
  - **the security control catalog**
  - **the security control baselines**
  - **tailoring guidance**
- Anticipate annual review/update of security control catalog and baselines with comprehensive public review and vetting process
- Maintain state-of-the-practice security control catalog as technology changes and security techniques improve

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